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TRANSMITTAL FORM

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Total Number of Pages in This Submission	10

Application Number	10/620,860
Filing Date	June 15, 2003
First Named Inventor	Antonio S. Cruz-Uribe
Art Unit	1732
Examiner Name	TENTONI, Leo B.
Attorney Docket Number	200309104-1

ENCLOSURES *(Check all that apply)*

- ☐ Fee Transmittal Form
  - ☐ Fee Attached
- ☐ Amendment/Reply
  - ☐ After Final
  - ☐ Affidavits/declaration(s)
- ☐ Extension of Time Request
- ☐ Express Abandonment Request
- ☐ Information Disclosure Statement
- ☐ Certified Copy of Priority Document(s)
- ☐ Reply to Missing Parts/ Incomplete Application
  - ☐ Reply to Missing Parts under 37 CFR 1.52 or 1.53
- ☐ Drawing(s)
- ☐ Licensing-related Papers
- ☐ Petition
- ☐ Petition to Convert to a Provisional Application
- ☐ Power of Attorney, Revocation Change of Correspondence Address
- ☐ Terminal Disclaimer
- ☐ Request for Refund
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  - ☐ Landscape Table on CD
- ☐ After Allowance Communication to TC
- ☐ Appeal Communication to Board of Appeals and Interferences
- ☒ Appeal Communication to TC (Appeal Notice, Brief, Reply Brief)
- ☐ Proprietary Information
- ☐ Status Letter
- ☒ Other Enclosure(s) (please identify below):

1. Certificate of Transmission (1 page)
2. Pre-Appeal Brief Request For Review Coversheet and Remarks (6 pages)

Remarks

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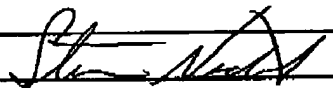
Signature			
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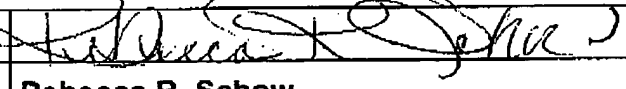
Signature			
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Application No.: 10/620,860 Attorney Docket No.: 200309104-1

Certificate of Transmission

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Transmitted, herewith, are the following documents:

1. Transmittal Form (1 page)
2. Certificate of Transmission (1 page)
3. Notice of Appeal from the Examiner to the Board of Patent Appeals and Interferences with duplicate copy (2 pages)
4. Pre-Appeal Brief Request For Review Coversheet and Remarks (6 pages)

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PRE-APPEAL BRIEF REQUEST FOR REVIEW

Docket Number (Optional): 200309104-1

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on March 17, 2006

Signature: /Rebecca R. Schow/

Typed or printed name: Rebecca R. Schow

Application Number	Filed
10/620,860	July 15, 2003

First Named Inventor: Antonio S. Cruz-Uribe

Art Unit	Examiner
1732	TENTONI, Leo B.

Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.

This request is being filed with a notice of appeal.

The review is requested for the reason(s) stated on the attached sheet(s).
Note: No more than five (5) pages may be provided.

I am the

- [ ] applicant/inventor.
- [ ] assignee of record of the entire interest. See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed. (Form PTO/SB/96)
- [ ] attorney or agent of record. Registration number _____
- [X] attorney or agent acting under 37 CFR 1.34. Registration number if acting under 37 CFR 1.34: 40,326

/Steven L. Nichols/
Signature

Steven L. Nichols
Typed or printed name

(801) 572-8066
Telephone number

March 17, 2006
Date

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below*.

- [ ] *Total of _____ forms are submitted.

This collection of information is required by 35 U.S.C. 132. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11, 1.14 and 41.6. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Mail Stop AF, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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REMARKS

The recent final Office Action maintained the earlier rejections of the claims. The recent Advisory Action fails to provide any substantive response to the arguments made by the Applicant.

Claims 1-26, 37 and 39-42 have been rejected as anticipated under 35 U.S.C. § 102(b) by U.S. Patent No. 6,346,986 to Kieronski ("Kieronski"). Claims 1-42 were also rejected as being unpatentable under 35 U.S.C. § 103(a) over the teachings of Kieronski taken alone. For at least the following reasons, these rejections are respectfully traversed.

Claim 1 recites:

> A method for producing a three-dimensional object through solid freeform fabrication comprising:
> *selectively depositing* containment material to form a boundary structure, wherein said boundary structure defines a surface of said object; and
> depositing a flowable build material within said boundary structure, wherein said flowable build material forms a portion of said object by flowing to said boundary structure.

(emphasis added).

Independent claims 7, 27, and 39 similarly recite "*selectively depositing containment material*" to form a boundary or perimeter structure.

In contrast, Kieronski fails to teach or suggest selectively depositing containment material to form a boundary structure or structural boundary. As described in Applicant's specification, "selective deposition methods include using a dispensing mechanism to deposit, at particular locations, individual drops of material known as voxels." (Applicant's specification, paragraph 0002). On the other hand, the system taught by Kieronksi does not include selectively depositing containment material as defined and claimed by the Applicant.[1] Rather, the method of Kieronski operates on entirely different principles.

Kieronski teaches using *stereolithography* to form a part that is essentially a mold "having opposing interior surfaces." (Kieronski, abstract). As is well known to those of skill

[1] The meaning of words used in the claims is determined by the meaning given to those words in the specification. *Markman v. Westview Instruments*, 116 S. Ct. 1384 (1996); *McGill, Inc. v. John Zink Co.*, 736 F.2d 666, 674 (Fed. Cir. 1984); *ZMI Corp. v. Cardiac Resuscitator Corp.* 884 F.2d 1576, 1580, 6 U.S.P.Q.2d 1557, 1560-61 (Fed. Cir. 1988) ("words must be used in the same way in both the claims and the specification.").

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in the art, stereolithography does not involve "selectively depositing" material. Rather, in stereolithography, a moveable platform is placed in a bath of liquid plastic. A laser is used to selectively solidify a portion of the surface of the liquid plastic on the platform.[2] The platform is then lowered further into the bath so that the solidified portion is submerged just below the surface of the liquid. The laser then again solidifies a portion of the surface of the liquid plastic. This process repeats until a desired object is formed on the platform.[3] The process *does not* include the selective deposition of material as does Applicant's claimed method.

The recent Office Action argues that "stereolithography ... is deemed to meet the recitation of 'selectively depositing.'" (Action of 12/20/05, p. 4). This is simply incorrect and an unreasonable construction of "selectively depositing." As defined by Applicant, "selective deposition methods include using a dispensing mechanism to deposit, at particular locations, individual drops of material known as voxels." (Applicant's specification, paragraph 0002). Stereolithography simply does not involve this "selectively depositing containment material to form a boundary structure," as recited in claims 1, 7 and 39.

"A claim is anticipated [under 35 U.S.C. § 102] only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987) (emphasis added). See M.P.E.P. § 2131. For at least this reason, the rejection of claims 1, 7 and 39 and their respective dependent claims under § 102 based on Kieronski should be reconsidered and withdrawn.

With regard to the § 103 rejection based on Kieronski, as demonstrated above, Kieronski fails to teach or suggest the claimed method that includes "selectively depositing containment material." In fact, Kieronski teaches away from selectively depositing

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[2] Stereolithography is a "three-dimensional printing process that makes a solid object from a computer image by using a computer-controlled laser to draw the shape of the object onto the surface of liquid plastic." (http://dictionary.reference.com).

[3] *See*, http://computer.howstuffworks.com/stereolith.htm

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containment material by teaching an entirely different process, stereolithography, for the formation of a mold.[4]

Moreover, there is no motivation in the prior art to modify Kieronski so as to include the claimed method step of selectively depositing containment material. Any such modification would be an outright change in the operating principles taught by Kieronski. "If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims prima facie obvious. *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959)." M.P.E.P. § 2143.01.

No prior art has been cited that teaches or suggests the selective deposition of containment material to form a boundary structure as claimed. The conclusions reached in the Office Action can only be reached if one ignores the definition of "selectively depositing" which is both given in Applicant's specification and is clear in the art. If the proper definition of "selectively depositing containment material" is respected, it becomes clear that the prior art cited fails to teach or suggest Applicant's claimed subject mater.

"To establish prima facie obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974)." M.P.E.P. § 2143.03. Accord. M.P.E.P. § 706.02(j). Consequently, the rejection under § 103(a) based on Kieronski should also be reconsidered and withdrawn.

Independent claim 37 recites:

> A method of producing a porous object though solid freeform fabrication, said method comprising:
> selectively depositing a first material with a high precision dispenser to form an outer boundary structure;
> selectively depositing a smaller, internal boundary structure with said high precision dispenser; and
> filling said outer boundary structure with a solidifiable build material, wherein said filling is performed by a low precision dispenser.

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[4] A reference must be considered for all it teaches, including disclosures that teach away from the invention as well as disclosures that point toward the invention. *Ashland Oil, Inc. v. Delta Resins & Refractories, Inc.* 776 F.2d 281, 227 U.S.P.Q. 657 (Fed. Cir. 1985).

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As demonstrated above, Kieronski fails to teach or suggest selectively depositing a first material to form an outer boundary structure. Kieornski further fails to teach or suggest selectively depositing a smaller, internal boundary structure with the same dispenser. For at least these reasons, the rejection of claim 37 and its dependent claims based on Kieornski should be reconsidered and withdrawn.

Claims 1-26 and 39-42 were also rejected as anticipated under 35 U.S.C. § 102(b) by DE 19537264 to Greul et al. ("Greul"). Alternatively, claims 27-38 were rejected as being unpatentable under 35 U.S.C. § 103(a) over the teachings of Greul taken alone. For at least the following reasons, these rejections are respectfully traversed.

Like Kieronski, Greul does not teach or suggest "selectively depositing containment material to form a boundary structure, wherein said boundary structure defines a surface of said object." As shown in Figs. 2 and 3, Greul teaches using a form to build two halves of a mold. There is no "selective deposition" of material to form the mold. Then, as shown in Fig. 4, the mold is assembled and, in Figs. 5-7, the mold is filled to produce the desired object. Nowhere does Greul teach or suggest "selectively depositing containment material to form a boundary structure, wherein said boundary structure defines a surface of said object." Reference should be had to the definition of "selectively depositing" from Applicant's specification which was noted above.

Again, "[a] claim is anticipated [under 35 U.S.C. § 102] only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987) (emphasis added). See M.P.E.P. § 2131. And, "[t]o establish prima facie obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974)." M.P.E.P. § 2143.03. Accord. M.P.E.P. § 706.02(j). For at least these reasons, the rejections based on Greul should be reconsidered and withdrawn.

Additionally, various dependent claims in the application recite further subject matter that is not taught or suggested by the prior art of record. Specific examples follow.

Claim 8 recites "depositing a sparse array support structure to support said boundary structure." None of the cited prior art references teach or suggest depositing a sparse array

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support structure to support a deposited boundary structure. The final Office Action fails to indicate how or where the prior art teaches this subject matter and thus fails to make out a *prima facie* case of unpatentablity.

Claim 18 recites "wherein said removing said boundary structure comprises melting said boundary structure." None of the cited prior art references teach or suggest melting a boundary structure. The final Office Action fails to indicate how or where the prior art teaches this subject matter and thus fails to make out a *prima facie* case of unpatentablity.

Claim 29 recites "dispensing a volume of fluid build material comprises adjusting said volume with a feedback control device." None of the cited prior art references teach or suggest a feedback control device as claimed. The final Office Action fails to indicate how or where the prior art teaches this subject matter and thus fails to make out a *prima facie* case of unpatentablity.

For at least these reasons, the indicated and similar claims should be found patentable over the prior art of record.

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